

**ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP PROGRAM
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

PROJECT INFORMATION

Project Title: West Mill Rx Burn, Altar Valley

Project No. 10-502

Region/GMU: Region 5/Unit 36C

HPC: Tucson

Project Type: Prescribed Burn

Project Description:

A consortium of cooperating agencies and organizations recently completed the Altar Valley Fire Management Plan (AVFMP) to allow for the re-introduction of fire as a functioning component of the ecosystem in the Altar Valley watershed. The AVFMP addresses ESA compliance/recovery goals, while implementing a fire management plan that reestablishes fire as a component of the grassland ecosystem. The consortium includes the non-profit landowner group Altar Valley Conservation Alliance (AVCA), Natural Resource Conservation Service (NRCS), U.S. Fish and Wildlife Service Ecological Services (AESO) and Buenos Aires National Wildlife Refuge (BANWR), Arizona Game and Fish Department (AGFD), Arizona State Land Department (ASLD), Arizona State Forestry Division (ASFD), Pima County Natural Resources, and The Nature Conservancy (TNC).

Promoting the restoration of natural fire regimes for improving grassland health is identified as a primary Conservation Strategy in *Arizona's Comprehensive Wildlife Conservation Strategy: 2005-2015*. Here prescribed burning is also recommended as an effective method for addressing wildlife values in multiple-use planning and actions, and especially in collaboration with other stewardship responsibilities. The 5,430-acre West Mill burn is an important part of a much larger prescribed fire and collaborative ecological restoration plan in Altar Valley. AVCA originally formed in 1995 to use fire as a tool to restore open grassland mosaics, and is now well-positioned to conduct its first fire in the Altar Valley southwest of Tucson. The multiple dimensions of this project represent an ideal platform for education, outreach, and a demonstration of collaboration that works to improve habitat for many interests.

Wildlife Species to Benefit: Mule deer, Coues' white-tailed deer, javelina, mountain lion

Possible Funding Partners: [to be filled in by AZGFD]

Implementation Schedule: West Mill Rx Burn

Beginning: January 2011

Completed: June 2011

NEPA Compliance: (if applicable)

Completed: Yes ____ No X

Projected Completion Date: April 2011

PROJECT FUNDING

SBG Funds Requested: \$ 19,500

Cost Share Funds: \$ 28,050

Total Project Costs: \$ 47,550

PARTICIPANT INFORMATION

Applicant: Altar Valley Conservation Alliance
(Pat King, President)

Phone: David Seibert
AVCA Restoration Coordinator
520-882-8202

Address: HCR 1, Box 97E
Tucson, AZ 85736

AGFD Contact and Phone Number Ben Brochu 520-229-3222
(If applicant is not AGFD personnel) Mark Frieberg 520-762-8172

Coordinated with: Kings Anvil Ranch, AZGFD, NRCS, BANWR,
AZ State Land Department

Date: June 2010

Applicant's signature:

David Seibert

Date: August 24, 2010

WAS PROJECT PRESENTED TO THE LOCAL HPC? YES X NO

HAS PROJECT BEEN SUBMITTED IN PREVIOUS YEARS? IF SO WAS IT FUNDED?

Project has never been submitted

NEED STATEMENT/PROBLEM ANALYSIS:

Fires occurred regularly in southern Arizona grasslands prior to 1882, likely occurring once every 8-12 years. Those fire regimes likely played a crucial role in maintaining grasslands by suppressing woody species and encouraging diverse new growth. Fire incidence in the Altar Valley decreased dramatically during most of the twentieth century due to several factors, including discontinuation of managed range fires with the introduction of wood fencing in the 1910s and 1920s, lack of sufficient herbaceous cover to sustain fires, increasingly effective and thorough fire suppression policies, and Endangered Species Act considerations. In recent years, the steady increase of woody species and decrease of herbaceous species in the Altar Valley has resulted in a renewed interest in restoring fire to the ecosystem.

As a management tool, fire can restore historic vegetation types by reducing woody species encroachment; by improving wildlife biodiversity with emphasis on threatened, endangered, and sensitive species; by improving watershed stability and hydrologic function through increased herbaceous vegetative cover; and by encouraging the formation of mosaics of vegetation in which flora and fauna thrive.

The 1936-37 US Army aerial photographs of the West Mill burn area show savannah vegetation consisting of large mesquite trees at a density of 1-2 trees per acre. At present the mesquite density and cover has increased dramatically. Target shrub and succulent species include mesquite, burrowed, snakeweed, cholla and prickly pear. Mesquite mortality was very low in the 1985-87 fires in the area (less than 5%), but is expected to be higher in this burn (10-15%). Burrowed/snakeweed mortality is always close to 100% in burned areas, and cacti mortality is expected to be around 50%. Wildlife and vegetation responses in the previous burn and in similar areas indicate a very high potential of significant habitat improvement measurable in three years or less, depending on rainfall.

PROJECT OBJECTIVES:

- Improve habitat in a multi-use region that responds well to fire, by conducting the Altar Valley Conservation Alliance's first prescribed burn under its new National Fish and Wildlife Foundation grant, through which AVCA will create five complete and approved Burn Plans for habitat restoration
- Reduce shrub density and increase perennial grass density, allowing for natural succession and ecological stability and diversity in vegetation that supports ecosystem functions, and wildlife and recreation
- Apply fire to 90% of the burn unit; consume 90% of the grass cover; scorch 60% of shrub/tree canopies
- NEPA requirements and physical protection of the endangered Pima pineapple cactus accomplished through surveys and documentation conducted in coordination with NRCS and USFWS by AVCA's Restoration Coordinator David Seibert; fire mitigation work accomplished on each plant through coordination with Buenos Aires National Wildlife Refuge methods
- Utilize burn area as collaborative conservation demonstration area for agencies and general public

PROJECT STRATEGIES:

The area north of the Anvil Ranch road burned in prescribed fire in June of 1985 (now the East San Pedro pasture); the areas south of the Anvil ranch road (now the Chico and West Mill pastures) were burned in 1987. Mesquite mortality was very low in the 1985-87 fires (less than 5%), but is expected to be higher in this subsequent burn (10-15%). Burrowweed and snakeweed mortality is always near 100% in burned areas and cacti mortality is expected to be around 50%. The unit boundary is defined by unimproved two-track roads, as are the three separate burn blocks. The plan calls for burning all three blocks, and all will be included in surveys and clearances, but individual blocks are possible for burning alone if new contingencies arise. Burn Blocks may be burned in any sequence and one or all may be burned at the same time, depending upon fuel loading. Target shrub and succulent species include mesquite, burrowed, snakeweed, cholla and prickly pear.

Implementation of the ignition phase of this project is expected to be completed in two days. Pre-burn preparation work will take 3 days. Coordination with U.S. Border Patrol is necessary to make sure burn area is clear of unauthorized persons. A Land Treatment Permit must be obtained from AZ State Land by Kings Anvil Ranch before ignition. All entities on the pre-burn notification list will be notified 24 hours before ignition, and all other protocols currently in place in the AVCA/multi-agency Altar Valley Fire Management Plan, and the West Mill Burn Plan assembled by AVCA/David Seibert, Larry Humphrey, and Dan Robinett, will be adhered to.

PROJECT LOCATION:

The West Mill Prescribed Burn is located 33 miles southwest of Tucson, AZ and 12 miles south-southwest of Three Points, AZ, an unincorporated community. The proposed size is 5,430 acres, with a perimeter of 13.5 miles. The topographic aspect lies to the east, with average slope less than 2 percent, on an alluvial fan consisting of almost flat terrain dissected by dry and geologically stable arroyos.

LAND OWNERSHIP AT PROJECT SITE:

All of the land in the proposed burn area is administered by the State of Arizona. Kings Anvil Ranch, operated by the fourth generation of the King family on the land, is the grazing lessee.

IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?

The King family has long-standing stewardship and habitat restoration agreements and a history of successful projects, including with NRCS and USFWS. According to Dan Robinett and Emilio Carrillo, NRCS employees and long-time hunters in this location, the area is rich with wildlife and supports a diverse flora, while enabling vital recreation access. As Larry Audsley (SASA) noted one day as he assisted AVCA in a trash cleanup near the ranch, "I'm here because they provide access."

HABITAT DESCRIPTION:

The proposed burn area is within the transition between Upper Sonoran Desert and Desert Grassland. Elevations range from 2,800 feet in the NE corner to 3,331 feet in the NW corner. Average annual precipitation ranges from 10 to 13 inches. The dominant soil type in the proposed burn area is the Hayhook (80%) soil series. Hayhook soil is deep and coarse textured (sand/sandy loam), and classed as a typic, aridic, coarse loam that enables quick post-burn vegetation recovery and limits erosion. Vegetation on Hayhook soil is Sonoran Desert grass-savannah. It is dominated by an over-story of large shrubs including mesquite, blue paloverde, catclaw acacia, snakeweed, burroweed, chain fruit and cane chollas and prickly pear. The understory is dominated by native annual and perennial grasses including Arizona cottontop, bush muhly, spidergrass, spike dropseed, Santa Rita threeawn, Rothrock grama, needle grama, and old-field threeawn. Numerous species of annual forbs can occur in wet seasons.

*This site will have ample herbaceous fuel to carry fire after just an average or wet summer, and recent rains have contributed significantly to current vegetation diversity and density, making a summer 2011 fire possible. AVCA has already coordinated with the ranch to plan and organize ranch operations and access for the burn.

ITEMIZED USE OF FUNDS:

Cost Share Amounts

AVCA landowners:

Burn boundary clearing	3 days x 8hr/day x \$75/hr	= \$1,800
Education, tours, public outreach	4 days x 2 people x \$200/day	= 1,600
Land Treatment Application		150

AVCA/National Fish and Wildlife Foundation:

Burn plan preparation—complete and approved	10,000
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AVCA-coordinated surveys: AZ State Land, NRCS, USFWS/Buenos Aires, Pima County, University of Arizona, volunteers	
5,430 acres x \$1.25/acre	6,700

The Nature Conservancy

Estimated cost for 15 people x avg.\$200/day x 2 days	6,000
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Buenos Aires National Wildlife Refuge	2 days x 2 people x \$200/day	800
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US Fish and Wildlife Service Partners Program

2 employees model burn for future Rx burns in Valley	\$250x4days	<u>1,000</u>
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Total Cost Share	\$28,050
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Funds Requested

AVCA Fire Management/Restoration Coordination:

Recon, coordination, erosion mapping/monit	10 days x \$250/day	2,500
Burn days	2 days x \$250/day	500
Pre- and post-burn monitoring	5 days x \$300/day	1,500
Data management, grant admin	10 days x \$250/day	2,500

Implementation—including burn and mop-up operations:

4 Type 6 engines x \$1,500/engine x 2 days	12,000
Torch fuel, food, misc supplies	<u>500</u>

Total Funds Requested	\$19,500
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Budget Summary:

Cost Share Amount	\$28,050
Funds Requested	<u>19,500</u>
Total Project Amount	\$47,550

West Mill Rx Burn = 5,430 acres

Total AZGFD/HPC Cost per acre = \$3.59/acre

COOPERATORS AND POTENTIAL PARTICIPATION:

Three Points Fire Department, Arivaca Fire Department, Buenos Aires Wildlife Refuge, and Border Patrol will have the opportunity to use the burn for training, and will receive a post-burn presentation by AVCA. The Kings Anvil Ranch and AVCA will volunteer time, tools, and machinery, and NRCS, Pima County Natural Resources, the Refuge and university students will volunteer time to conduct surveys, clear firelines, and improve education and outreach opportunities about fire as a tool for habitat improvement. AVCA has begun proposal collaboration and information sharing with the newly formed S.AZ Grasslands Collaborative Grassland Workgroup, including Glen Dickens and Kerry Baldwin on specific projects, in order to establish together a foundation for using fire and other tools to reach shared goals in the Altar Valley. In a significant new development, AVCA has just begun to work with the USFWS/Partners program to help them contribute to their first burn in the region. AVCA also continues to work with NRCS to coordinate prescribed fire and erosion control work, in order to increase each fire's chances of success, and landowners' willingness to participate in restoration work on the ground.

PROJECT MONITORING PLAN:

Extensive vegetation monitoring will be done at three locations. The monitoring protocol was developed by Dr. Ron Tiller (The Nature Conservancy) for use on the Las Cienegas National Conservation Area (BLM). It was designed to sample the effects of land treatments such as prescribed fire and mechanical mesquite removal upon target shrub species and herbaceous plant communities. Data collection methods and management will align with existing TNC protocols, and will be shared with multiple agencies including NRCS and USFWS/Buenos Aires. The protocol employs a 100 meter baseline permanently marked by steel T-posts at both ends. Herbaceous vegetation (point cover) is recorded at half-meter intervals (200 hits) along the 100 meter tape. Measurements include foliar and basal cover by plant species, ground cover (litter, gravel, rock, cryptogams and bare soil) and standing litter (dead more than a year) cover. Photographs with data placards are taken at each end of the transect line in the four cardinal directions each year and immediately before and after the planned fire.

Second, trees, shrubs and succulents are also recorded in belt transects along the 100 meter baseline. A two-meter belt on either side of the baseline is used to record the size and canopy dimensions of all woody and succulent plants by species that are rooted in the belt. Third, shrub hits are recorded at the meter reading along the baseline tape. Size (height) and canopy (live and dead) width and length are recorded by species.

Other data recorded at each transect include GPS location, azimuth of the baseline, elevation, precipitation, and notes applicable to the current season. At the time of actual burning fire behavior and fire climate measurements will be taken at each transect area as it burns. This information includes temperature, relative humidity, wind direction and speed, rate of spread, estimated flame lengths and time of day. Rain gauges will be 30 inch lengths of 2 inch PVC pipe tied to a transect T-post, charged with a 50/50 mixture of antifreeze and auto transmission fluid to prevent evaporation, and will be read in the spring and fall.

PROJECT MAINTENANCE:

Monitoring data will be used to determine fire effects over time, and to speculate about optimal fire frequency through adaptive management that includes comparisons with similar situations, and with the experiences of Buenos Aires and other fire-related agencies. Ongoing dialogues with the King family will be crucial to understanding how variables such as rainfall and short and long-term vegetation and wildlife responses coordinate with one another. Other prescribed burns and wildfires will be tracked and compared to the West Mill Burn over time. Photos will be taken annually at designated photo points, and rainfall and landowner observations of changes over time will be recorded through interviews and site visits as the landscape responds. As AVCA's first prescribed burn, the area will be a model demonstration site for fire effects and collaborative conservation and education in the Altar Valley.



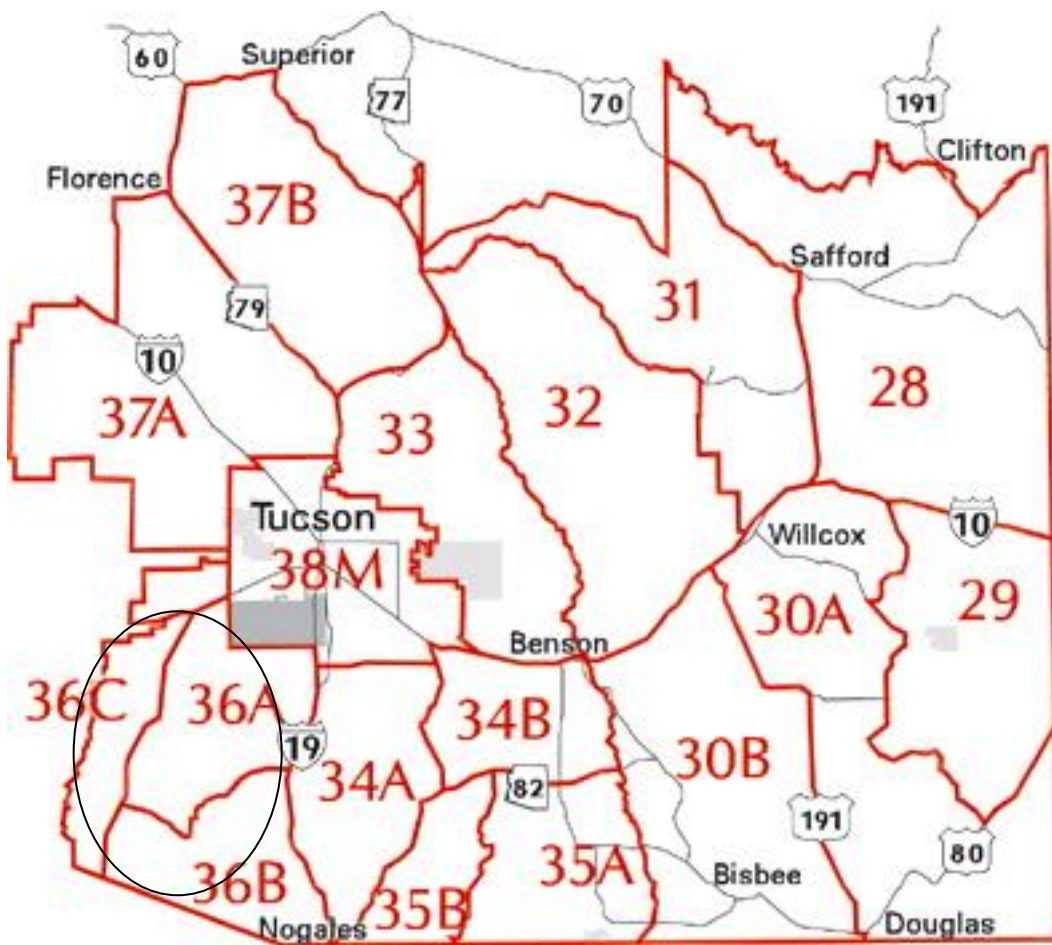
Key Area #3, West Mill pasture June 1985 Key Area #3, West Mill pasture October 1988

PROJECT COMPLETION REPORT TO BE FILED BY:

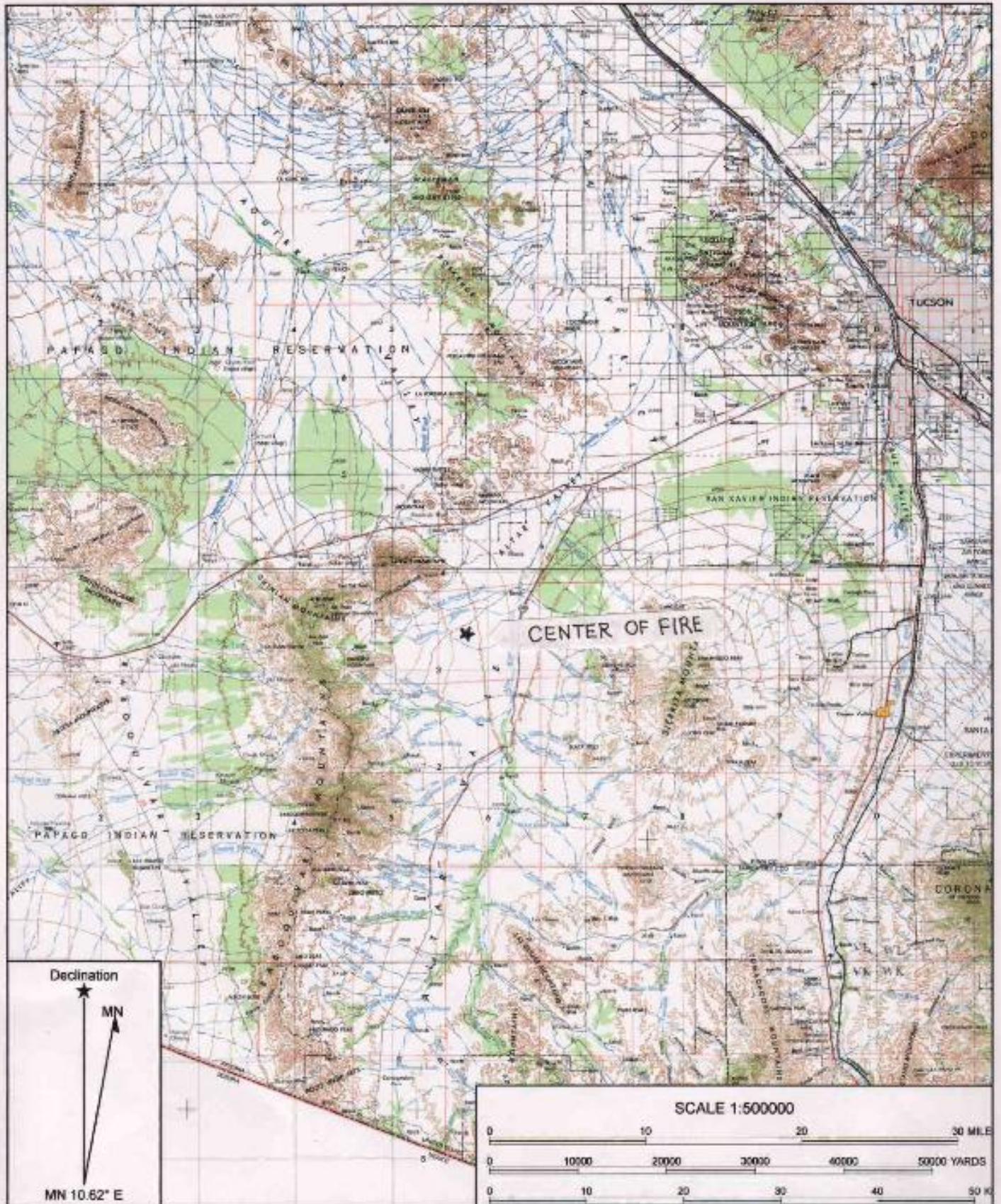
David Seibert, AVCA Restoration Coordinator

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520.882.8202



The Altar Valley watershed and associated Game Management Units



Name: NOGALES (AZ)
Date: 07/29/10

VICINITY MAP

Location: 031° 57' 55.96" N 111° 24' 41.14" W

